

## REMARKS

The Office Action dated September 9, 2004 has been received and carefully considered. Claims 1, 4-7, 9-11, 24-26 and 28 have been amended to address various informalities and to remove “step of” phrasing. These amendments do not narrow the scope of the claims. Reconsideration of the outstanding objections and rejections in the present application is respectfully requested in view of the following remarks.

### **Allowability of Claims 17-31**

The Applicants note with appreciation the indication at page 2 of the Office Action that claims 17-31 are allowed.

### **Objection to Claims 1 and 7**

The Applicants have amended claims 1 and 7 consistent with the Examiner’s suggestions at page 2 of the Office Action. Withdrawal of the objection to claims 1 and 7 therefore is respectfully requested.

### **Obviousness Rejection of Claims 1, 4-7, 9-12 and 14-16**

At page 2 of the Office Action, claims 1, 4-7, 9-12 and 14-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nulman (U.S. Patent No. 6,303,395) in view of Arackaprambil (U.S. Patent App. Pub. No. 2002/0156548). This rejection is respectfully traversed.

Claim 1, from which claims 4-6 depend, recites, in part, the limitations of receiving a request *from an equipment interface* for a data collection plan and configuring the equipment interface, using a statistical process control system, to collect the semiconductor process parameters, wherein configuring includes *providing the data collection plan to the equipment interface*. Claim 7, from which claims 9-11 depend, recites, in part, the related limitations of receiving a request *from an equipment interface* to receive a data collection plan and *providing the data collection plan to the equipment interface* of a semiconductor tool through a statistical process control system *in response to receiving the request from the equipment interface*. Claim 12, from which claims 14-16 depend, recites, in part, the similar limitations of a program of instructions including instructions to receive a request *from an equipment interface to receive a data collection plan* and *provide the data collection plan to the equipment interface* of the

semiconductor tool through a statistical process control system. The Examiner admits that Nulman does not disclose these limitations, and therefore relies on the passage at paragraphs 0095-0097 of Arackaprambil as disclosing these limitations. *Office Action*, pp. 3-5 and 7. For ease of reference, the cited passage of Arackaprambil is provided below:

[0095] DFS/F of the present invention includes a novel TIC application component (Table IV) for facilitating communications between various DFS/F components and equipment, such as wafer fab tools, by providing the basic equipment control building blocks which can be assembled in a VWC (Table III) workflow to control a machine. TIC provides services which include sending and receiving VFEI messages or commands to and from equipment. A sequence of these commands or messages represents a business logic such as commands to control a tool. These types of sequences can be defined in a VWC workflow. TIC provides the building blocks which are used to send commands or messages to a tool and to receive messages or information from the tool, and to communicate the received messages or information to other DFS/F components. TIC is part of the communications link between DFS/F and equipment such as wafer fab tools.

[0096] TIC of the present invention comprises a novel combination of a TIP (tool interface program) and a novel TIC adapter. TIP is provided for each machine or tool type to translate VFEI commands or messages to an interface, such as SECS, of a machine and its controls such as control SW. Equipment which is adapted for communicating with novel DFS/F will have a TIP instance, i.e. a SW process dedicated to the equipment, running as an intermediary between the equipment and the DFS/F. An example of a suitable communication protocol between a TIP instance for a machine and DFS/F is a VFEI on DCOM protocol. Additionally it is contemplated to provide a novel VFEI+ on DOOM protocol wherein VFEI+ will include enhancements for administration, for modeling and for the RPC (remote procedure call) nature of DCOM. It is contemplated to distribute TIP on several computers, for example where these computers are utilized in computer integrated wafer fab tools employing TIP SW.

[0097] A TIC adapter of the present invention is an intermediary between DFS/F and TIPS for example by allowing other DFS/F components to access tool capabilities through generalized commands which the adapter then adapts to the needs of the tool's specific TIP instances. This is illustrated in the following example for collecting measurements using a metrology tool in a wafer fab having different tools available for collecting the measurements. These novel techniques are adapted for embedding the collection process in a VWC WF which then enables a user, such as a process technician or engineer, *to send identical measurement requests to TIC. The TIC adapter then translates the request into tool specific VFEI requests based on the particular tool which is selected at run time.* These techniques of the present invention are capable of *defining for example a single QMC (quality management component) data collection plan which can then be used for different tools collecting the same types of data,*

*because the TIC adapter can translate the to data parameter names from the generic name in the QMC plan to the specific names required by specific equipment types or tools.*

*Arackaprambil*, para. 0095-0097 (emphasis added).

Contrary to the Examiner's assertions, it is respectfully submitted that the cited passage of *Arackaprambil* neither discloses nor suggests receiving a request for a data collection plan *from an equipment interface* as recited by claims 1, 7 and 12. Instead, the above-cited passage discloses that the provision of particular measurement requests are initiated by the "DFS/F" (which the Examiner appears to consider analogous to the statistical process control system of claim 1). Moreover, *Arackaprambil* does not disclose or suggest the provision of a data collection plan to an equipment interface or that such provision of a data collection plan is part of a configuration of the equipment interface as recited by claim 1. Instead, the cited passage of *Arackaprambil* discloses that measurement requests are sent by a user to a TIC, whereupon a TIC adapter "then translates the request into tool specific VFEI requests based on the particular tool which is selected at run time." *Id.* Accordingly, it is respectfully submitted that the Office Action fails to establish that the proposed combination of Nulman and *Arackaprambil* disclose or suggest each and every limitation of claims 1, 7 and 12, as well as each and every limitation of claims 4-6, 9-11 and 14-16 at least by virtue of their dependency from one of claims 1, 7 or 12. Moreover, these claims recite additional limitations neither disclosed nor suggested by the cited references.

In view of the foregoing, it is respectfully submitted that the obviousness rejection of claims 1, 4-7, 9-12 and 14-16 is improper at this time and withdrawal of this rejections therefore is respectfully requested.

## **Conclusion**

The Applicants respectfully submit that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 01-0365.

Respectfully submitted,

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Date



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